

CLAIMS

1. A system for de-icing a surface of a cableway system component, comprising:
an electrical conductor proximate to the surface;
an AC power source for providing a high-frequency AC voltage in the electrical conductor
that generates a high-frequency alternating electric field at the surface sufficient to melt ice at the surface.
2. A system as in claim 1, wherein the cableway system component functions as an electrical sink for the alternating electric field.
3. A system as in claim 2, wherein the cableway system component is connected to electrical ground.
4. A system as in claim 1, wherein the electrical conductor is disposed at a distance of about from 0 to 30 cm from the cableway system component.
5. A system as in claim 1, further comprising an electrical sink, the electrical sink located proximate to the electrical conductor to increase the strength of the alternating electric field at the surface.
6. A system as in claim 5, wherein the surface is disposed between the electrical conductor and the electrical sink.
7. A system as in claim 5, wherein the electrical conductor is disposed at a distance of about from 0 to 30 cm from the electrical sink.
8. A system as in claim 1, wherein the cableway system component is electrically conductive and is connected to the AC power source, the electrical conductor is connected to the AC power source, so that the AC power source energizes the cableway system component and the electrical conductor at the same AC potential but 180 degrees out of phase from each other.
9. A system as in claim 1, wherein the AC power source provides high-frequency AC voltage with a frequency in a range of about from 60 kHz to 100 kHz.
10. A system as in claim 1, wherein the AC power source provides high-frequency AC voltage with a voltage in a range of about from 3 kV to 15 kV.
11. A system as in claim 1, further comprising an electrically insulating spacer that separates the electrical conductor and the cableway system component.
12. A system as in claim 1, wherein the cableway system component is a cableway.

13. A system as in claim 1, wherein the cableway system component is a cableway system tower.

14. A system as in claim 1, wherein the electrical conductor is integral with the cableway system component.

5 15. A system for melting ice, comprising:

a first electrical conductor disposed at a distance of about from 0 to 30 cm from the ice;

an AC power source for providing a high-frequency AC voltage in the first electrical conductor so that the AC voltage generates a high-frequency alternating electric field in the ice.

10 16. A system as in claim 15, further comprising an electrical sink, the electrical sink disposed at a distance of about from 0 to 30 cm from the first electrical conductor to increase the strength of the alternating electric field.

17. A system as in claim 15, wherein the electrical sink is connected to electrical ground.

18. A system as in claim 17, wherein the ice is disposed between the first electrical conductor and the electrical sink.

15 19. A system as in claim 15, wherein the ice covers a surface of an object being deiced, and the electrical sink is integral with the object.

20 20. A system as in claim 15, wherein the ice covers a surface of an object being deiced, and the first electrical conductor is integral with the object.

21. A system as in claim 15, further comprising a second electrical conductor connected to the AC power source, wherein the first electrical conductor is connected to the AC power source, so that the AC power source energizes the first electrical conductor and the second electrical conductor at the same AC potential but 180 degrees out of phase from each other.

22. A system as in claim 15, wherein the AC power source provides high-frequency AC voltage with a frequency in a range of about from 60 kHz to 100 kHz.

25 23. A system as in claim 15, wherein the AC power source provides high-frequency AC voltage with a voltage in a range of about from 3 kV to 15 kV.

24. A method for de-icing a surface of a cableway system component, comprising a step of: applying a high-frequency AC voltage to an electrical conductor that is located proximate to the surface, to generate a high-frequency alternating electric field that melts ice at the surface.

30 25. A method as in claim 24, wherein the step of applying high-frequency AC voltage includes

flowing AC current with a frequency in a range of about from 60 kHz to 100 kHz.

26. A method as in claim 24, wherein the step of applying high-frequency AC voltage includes applying AC voltage with a voltage in a range of about from 3 to 15 kV.

27. A method as in claim 24, further including separating the electrical conductor from the cableway system component using an electrically insulating spacer.

28. A method as in claim 24, further comprising a step of connecting the cableway system component to electrical ground.

29. A method as in claim 24, further comprising a step of providing an electrical sink, wherein the surface is located between the electrical conductor and the electrical sink.

30. A method as in claim 24, wherein the cableway system component is electrically conductive and further comprising the steps of:

connecting an AC power source to the cableway system component;

connecting the AC power source to the electrical conductor; and

connecting the AC power source to electrical ground, so that the AC power source energizes the cableway system component and the electrical conductor at the same AC potential but 180 degrees out of phase from each other.

31. A method for melting ice, comprising a step of:

applying a high-frequency AC voltage to a first electrical conductor that is located at a distance of about from 0 to 30 cm from the ice, to generate a high-frequency alternating electric field that melts the ice .

32. A method as in claim 31, wherein the step of applying high-frequency AC voltage includes flowing AC current with a frequency in a range of about from 60 kHz to 100 kHz.

33. A method as in claim 31, wherein the step of applying high-frequency AC voltage includes applying AC voltage with a voltage in a range of about from 3 to 15 kV.

34. A method as in claim 31, further comprising a step of providing an electrical sink within a distance of about from 0 to 30 cm from the first electrical conductor

35. A method as in claim 34, wherein the ice is located between the electrical conductor and the electrical sink.

36. A method as in claim 34, wherein the ice covers a surface of an object being deiced, and the electrical sink is integral with the object.

37. A method as in claim 31, wherein the ice covers a surface of an object being deiced, and the first electrical conductor is integral with the object.

38. A method as in claim 31, further comprising a step of connecting the electrical sink to electrical ground.

5 39. A method as in claim 31, further comprising steps of:

applying the AC voltage to a second electrical conductor 180 degrees out of phase from the first electrical conductor so that an AC power source energizes both the first and second electrical conductors.

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